

QUALITY ASSURANCE PROJECT PLAN
Road Surface Soil Sampling Investigation

Village Discount Outlet, Inc.
2200 Indianapolis Boulevard
Hammond, Indiana 46320

April 2019 (v. 3.0)

Participants:

Mark Conti, EPA Region 5, Office of Enforcement and Compliance Assurance (OECA)
Sarah Clark, EPA Region 5, Enforcement and Compliance Assurance Division (ECAD)

Prepared By: Sarah Clark 4/30/19
Sarah Clark, Project Lead (Sign and Date)

Approved By: Bilal Qazzaz 4/30/19
Bilal Qazzaz, ARD Division Quality Assurance Coordinator (Sign and Date)

Approved By: Nathan Frank 4/30/19
Nathan Frank, AECAB IL-IN Section Chief (Sign and Date)

Reviewed By:

Amanda Wroble, Sample Coordinator, EPA Region 5, Chicago Regional Laboratory

DISTRIBUTION LIST

Each of the following individuals has been provided with a copy of this project plan:

Mark Conti, EPA R5-OECA
Sarah Clark, EPA R5-ECAD
Bilal Qazzaz, EPA R5-ARD
Nathan Frank, EPA R5-ECAD
Amanda Wroble, EPA R5-CRL
Robert Snyder, EPA R5-CRL

PROJECT TASK/ORGANIZATION

Mark Conti will be responsible for collecting surface soil samples as outlined in Table 1. Sarah Clark and/or Mark Conti will provide access to the Village Discount property. Amanda Wroble will review the QAPP and act as CRL Sample Coordinator. Bilal Qazzaz and Nathan Frank will review and approve the QAPP. Robert Snyder will act as CRL Sample Custodian. CRL will prepare and analyze the surface soil samples for the various individual metals listed in Table 3 and Table 4 using the reference methods identified in Table 2.

Representatives of the Indiana Department of Environmental Management (IDEM) may request to collect split samples with EPA. This QAPP is applicable only to those actions performed by EPA personnel.

PROBLEM DEFINITION/BACKGROUND

U.S. Environmental Protection Agency (EPA) Region 5 issued a Notice of Violation, dated November 8, 2018, to Whiting Metals LLC (Whiting Metals) for causing an exceedance of the lead national ambient air quality standard of $0.15 \mu\text{g}/\text{m}^3$. Additional analysis of the filter paper from the ambient air monitor identified cadmium concentrations exceeding the acute minimal risk level of $30 \text{ ng}/\text{m}^3$ used by the Agency for Toxic Substances and Disease Registry (ATSDR) for health screening purposes.

To better understand the impact of Whiting Metals operations on the lead and cadmium concentrations measured by the air monitors, on December 14, 2018, EPA issued to Whiting Metals an information request under Section 114 of the Clean Air Act. This information request asked Whiting Metals to record their production data and to provide EPA with this data monthly. Additionally, on December 20, 2018, EPA and IDEM collected baghouse dust samples from the baghouses associated with the lead alloy processing and de-tinning operation at the Whiting Metals facility. Analysis of the production data and baghouse dust sampling is ongoing.

According to statements made by Whiting Metals representatives during a meeting on December 3, 2018, another possible contributor to the lead (and cadmium) ambient air concentrations is an access road (Road) which runs along the north side of the property shared by Whiting Metals. This Road is frequently used by a neighboring business called Village Discount Outlet, Inc. (Village Discount) to send and receive deliveries by truck. Segments of the Road on Village Discount property is paved, but portions of the Road on the north, northwest, and south areas of the Village Discount property remain unpaved. Because the Road is situated on the former Federated Metals property, it is possible that the surface soil of the unpaved Road contains

historical lead and cadmium pollutants. These pollutants could be emitted in fugitive dust generated by traffic flow. Metals analysis of the unpaved Road surface soil may be needed for enforcement case resolution.

In order to obtain additional information about the metals composition of potential fugitive dust emissions, EPA will be conducting surface soil sampling along the unpaved Road in use at the Village Discount facility located at 2200 Indianapolis Boulevard in Hammond, Indiana (note that the address used on the Village Discount website, <https://villagediscountoutlet.com/shipping/>, is 2230 Indianapolis Boulevard, Hammond/Whiting, Indiana, 46394). A map of the possible sampling locations is shown in Figure 1.

Additionally, in order to obtain a background metals composition for comparison, EPA will also be conducting surface soil sampling along public right-of-ways (Right-of-Ways) within the city of Hammond, Indiana. Right-of-Way sampling locations may include “the dividing line between a lot and a public street,” as defined within the Hammond, Indiana Code of Ordinances, adopted by reference at §158.01, Ord. No. 8514 (9-22-2003), Title I, Section 1.5, under “Right-of-Way Line.” A map of the possible approximate sampling locations is shown in Figure 2.

PROJECT/TASK DESCRIPTION

During the week of April 22, 2019, Region 5 will notify Village Discount site personnel of the planned sampling event to occur on the Road. Sarah Clark from EPA Region 5 ECAD or IDEM will provide notice to Village Discount.

During the week of April 29, 2019, Region 5 will notify the city of Hammond of the planned sampling event to occur at the Right-of-Ways. Nathan Frank from EPA Region 5 ECAD will notify the Hammond Department of Environmental Management.

The notification dates and sampling dates are subject to change in the event of inclement weather.

During the on-site sampling event, EPA will perform the following activities:

At Village Discount, consistent with Table 1, one approximate 4-oz sample will be collected from each of the 12 sample locations at the surface of the Road. Surface soil sampling will occur while the Road is not in use (i.e., no truck traffic). Surface soil sampling will be conducted in a manner consistent with the attached Procedure for Collecting Road Surface Soil Samples for Total Metals Analysis (Appendix A). Chain-of-custody forms and laboratory analyses will be provided by the EPA Region 5, CRL. The Road surface soil sampling locations will be located throughout the region identified in Figure 1 to provide general coverage of this portion of the Road.

At the Right-of-Ways, consistent with Table 1, one approximate 4-oz sample will be collected from each of the 3 to 5 sample locations at the surface of the Right-of-Ways (below sod layer, if present), located throughout the region identified in Figure 2. Surface soil sampling will be conducted in a manner consistent with the attached Procedure for Collecting Right-of-Way Surface Soil Samples for Total Metals Analysis (Appendix B). Chain-of-custody forms and laboratory analyses will be provided by the EPA Region 5, CRL.

With the objective of characterizing the metals potentially emitted from the Road and to obtain the background metals content of the Hammond Right-of-ways, all surface soil samples will be analyzed for total metals (except mercury and chromium (VI)), via the methods listed in Table 2.

Project Timeline

The Road surface soil sampling event will occur first. The Right-of-Way surface soil sampling will occur afterwards. The Road and Right-of-Way surface soil sampling will commence and conclude within the same day. Road and Right-of-Way surface soil sampling may be delayed or postponed in the event of inclement weather.

QUALITY OBJECTIVES AND CRITERIA

The main objective of Road surface soil sampling at Village Discount is to determine the composition of metals potentially emitted, in the form of fugitive dust, by truck traffic when the Road is in use. The results of this analysis can be compared to monitoring data to help determine whether the dust emitted along the Road is a potential contributor of the metals measured by the ambient air monitors.

The main objective of the Right-of-Way surface soil sampling in Hammond, Indiana is to determine the composition of metals present in the Hammond soil to be used as a reference background comparison.

Standard field inspection notes, including measurement activities, site drawings, chronological record of other daily activities, observations, etc., will be recorded in field notebooks as per Appendix A and Appendix B.

The Road and Right-of-Way surface soil samples will be representative of the sampled sources because the standard operating procedures (SOP) in Appendix A and Appendix B, respectively, will be followed. These SOPs are designed to result in representative sample collection.

Quality objectives for the Road and Right-of-Way surface soil samples analyzed by CRL will be consistent with CRL's current SOPs for EPA Method 200.8/SW-846 6020B and Method 200.7/6010D. The list of metals and reporting limits (RL) for each metal are shown in Tables 3 and 4.

SPECIALIZED TRAINING AND CERTIFICATIONS

No specialized training and certifications are required; however, sampling will be performed by experienced EPA personnel.

DOCUMENTATION AND RECORDS

Records of the date, time, and location of all sampling activities will be kept in a field logbook and will be preserved in the case file and final report. Documents and records obtained from the facility will be uniquely numbered and listed on a document log. A photograph log will be maintained. A copy of the document and photograph logs, with a receipt for samples/documents, will be offered to the facility before completion of the on-site investigation. Any documents

declared to be confidential business information (CBI), pursuant to 40 CFR Part 2, will be so noted on the log and secured appropriately.

SAMPLING PROCESS DESIGN (Experimental Design)

Described above.

SAMPLING METHODS

As described in Appendix A.

SAMPLE HANDLING AND CUSTODY

Road and Right-of-Way surface soil samples will be collected in individual 4-oz jars, sealed in one or more plastic bags, and packed in a cooler with ice or blue cold packs. A Chain of Custody form may be placed inside a resealable bag and placed inside the sample cooler. The sample cooler will be taped shut and custody seals will be placed at opposite corners of the cooler. Alternatively, the samples may be placed in a plastic bag inside the cooler and the bag will be sealed with tape and a custody seal will be placed around the tape.

Samples will be transported by vehicle to:

Chicago Regional Lab
Attn: Robert Snyder
536 South Clark, 10th Floor
Chicago, Illinois 60605

ANALYTICAL METHODS

Described above and in Table 1.

QUALITY CONTROL

Sample holding time, preservation and sample container requirements are outlined in the US EPA Region 5 – CRL Sample Requirements Table, Version 5, as revised on April 2019 (see Appendix C).

INSTRUMENT/EQUIPMENT TESTING, INSPECTION, AND MAINTENANCE

Road and Right-of-Way surface soil sampling will follow the above-referenced SOPs.

EPA-CRL is accredited to the ISO-IEC 17025-2005 Standard. CRL will follow its established SOPs for all Road surface soil sample analyses, including established procedures for instrument/equipment calibration and frequency.

INSTRUMENT/ACCEPTANCE FOR SUPPLIES AND CONSUMBABLES

EPA will only collect Road and Right-of-Way surface soil samples in sample jars that are unbroken.

NON-DIRECT MEASUREMENTS

Not applicable.

DATA MANAGEMENT

Described above, and CRL will make results of laboratory analysis available to the Project Lead in the form of an MS Excel file.

ASSESSMENTS AND RESPONSE ACTIONS

Any data that is not generated in accordance with this QAPP may be flagged as invalid.

REPORTS TO MANAGEMENT

Sarah Clark will prepare an inspection report for management review. This inspection report will not contain any results of the laboratory analysis and may be finalized before receipt of CRL's analysis of the Road and Right-of-Way surface soil samples.

DATA REVIEW, VERIFICATION, AND VALIDATION

CRL will prepare standard reports for Road and Right-of-Way surface soil analysis that address the validity of the measured metal species. CRL will also prepare a standard Level 2 data deliverable package for the Road and Right-of-Way surface soil samples, including (1) a pdf of the final Level 2 report that includes the work order and (2) an electronic data deliverable (EDD), including reports on the QC activities consistent with their current SOPs. EDD typically refers to an Excel spreadsheet of the data.

VERIFICATION AND VALIDATION METHODS

Described above.

RECONCILIATION WITH USER REQUIREMENTS

Not applicable.

DECONTAMINATION PROCEDURES

Pre-cleaned dedicated sampling equipment will be used at the sampling site.

CONTACTS

<u>Village Discount</u>	<u>Phone</u>
Shipping/Receiving	708-388-4772 (ext. 428)
Thomas Alumparampil, Manager	312-636-5904
Thomas Foley, President/General Manager	708-308-8931

<u>EPA Field Personnel</u>	<u>Office</u>	<u>Cell Phone</u>
Mark Conti	440-250-1706	440-855-7072
Sarah Clark	312-886-9733	440-308-7968

<u>CRL Personnel</u>	<u>Office</u>
Amanda Wroble	312-353-0375
Robert Snyder	312-353-9083

FIGURES

Figure 1 – Road Surface Soil Sampling Locations

Figure 2 – Right-of-Way Surface Soil Sampling Locations

TABLES

Table 1 – Estimated Sample Numbers and Types for Road and Right-of-Way Sampling

Table 2 – List of EPA Methods for Road and Right-of-Way Surface Soil Analysis for Metals

Table 3 – US EPA Region 5 - CRL Metals 001 List of Metals and RLs

Table 4 – US EPA Region 5 - CRL Metals 003A List of Metals and RLs

ATTACHMENTS

Appendix A: Procedure for Collecting Road Surface Soil Samples for Total Metals Analysis

Appendix B: Procedure for Collecting Right-of-Way Surface Soil Samples for Total Metals
Analysis

Appendix C: US EPA Region 5 – CRL Sample Requirements Table, Version 5

Appendix A

Procedure for Collecting Road Surface Soil Samples for Total Metals Analysis

In addition to following the general guidance provided in the U.S. EPA Region 5 Air and Radiation Division Quality Management Plan, dated May 31, 2018, Section 4.8 Quality Assurance Field Activities Procedure, the following approach was developed to sample surface soil present along the Road located along the north side of the former Federated Metals Property and operated by Village Discount. 12 samples will be collected from along the Road.

Required materials:

- Site map
- Digital camera
- One sample cooler
- Ice packs
- 12 4-oz sample collection jars with lids
- EPA Chain of Custody Forms, Custody Seals and Sample Tags
- Level D PPE, including steel-toe boots, protective eyewear, gloves, high-visibility clothing
 - Required for all personnel
- Sample labels
- Field logbook
- Time-piece
- Disposable sampling device (one for each sample collected) or pre-cleaned sampling device consisting of any of the following: shovel, spade, spatula, trowel, or scoop
- Disposable sampling pan (one for each sample collected)
- Permanent Marker
- Disposable nitrile/neoprene gloves
- 1 or more plastic bags for the sample jars

At least one member of the field sampling team should take notes and photographs and provide support activities to the team member collecting samples.

Sampling procedures for each Road surface soil sampling location are noted below.

1. Request a representative of Village Discount to stop truck use of the Road.
2. Identify all sampling locations.
3. Mark and number sampling locations on site map.
4. Write the sample number, date and time on sample jar lids using permanent marker. Record this information, as well as the field collector's name, on the sample labels, chain of custody forms, and in the field logbook.
5. Open the sample jar and use the sampling equipment to collect surface soil sample from approximately zero to one-inch depth. If the sample has stones or other debris, place the sample in a disposable sampling pan and remove debris prior to putting the sample in the sample jar.
6. Take one or more photographs of the sampling event.
7. Once the sample is collected, seal the jar and affix the label.

8. Place the sealed jar in a plastic bag and place in the cooler.
9. Repeat steps 4-8 for each surface soil sampling location. Any deviations should be noted in the field logbook.

After all samples are collected and placed in the cooler, if the cooler does not already contain ice, add ice. A thermometer may be used to verify that the temperature of the cooler is 6 degrees Celsius or lower. Add additional ice if needed. Ensure that all labels, chain-of-custody forms, and the field logbook are filled out for samples; ensure that all photographs are documented in the field logbook and samples numbers indicated. If mailing the samples, enclose the chain-of-custody forms inside of a plastic bag, affix the bag to the inside of the cooler, and seal the cooler with sample evident security tape or with locks. Alternatively, the samples may be placed in a plastic bag inside the cooler and the bag will be sealed with tape and a custody seal will be placed around the tape.

The sample coolers with the chain-of-custody forms should be delivered to Robert Snyder at EPA -CRL within 24 hours of collection. Contact Robert at snyder.robert@epa.gov or (312) 353-9083 to coordinate sample drop-off. Carbon-copy Amanda Wroble, at wroble.amanda@epa.gov, on all emails to Robert. Sample drop-off will occur at:

EPA - Chicago Regional Laboratory
10th Floor
536 South Clark Street
Chicago, IL 60605

Appendix B

Procedure for Collecting Right-of-Way Surface Soil Samples for Total Metals Analysis

In addition to following the general guidance provided in the U.S. EPA Region 5 Air and Radiation Division Quality Management Plan, dated May 31, 2018, Section 4.8 Quality Assurance Field Activities Procedure, the following approach was developed to sample surface soil present along the Right-of-Ways located throughout Hammond, Indiana. 3 to 5 samples will be collected from along the Right-of-Ways.

Required materials:

- Site map
- Digital camera
- One sample cooler
- Ice packs
- 3 to 5 4-oz sample collection jars with lids
- EPA Chain of Custody Forms, Custody Seals and Sample Tags
- Level D PPE, including steel-toe boots, protective eyewear, gloves, high-visibility clothing
 - Required for all personnel
- Sample labels
- Field logbook
- Time-piece
- Disposable sampling device (one for each sample collected) or precleaned sampling device consisting of any of the following: shovel, spade, spatula, trowel, or scoop
- Disposable sampling pan (one for each sample collected)
- Permanent Marker
- Disposable nitrile/neoprene gloves
- 1 or more plastic bags for the sample jars

At least one member of the field sampling team should take notes and photographs and provide support activities to the team member collecting samples.

Sampling procedures for each Right-of-Way surface soil sampling location are noted below.

1. Identify sampling location.
2. Mark and number sampling location on site map.
3. Write the sample number, date and time on sample jar lids using permanent marker. Record this information, as well as the field collector's name, on the sample labels, chain of custody forms, and in the field logbook.
4. If sampling location is covered by sod, use the disposable sampling equipment or gloved hands to remove or peel back the sod from the sampling location.
5. Open the sample jar and use the sampling equipment to collect surface soil sample from approximately zero to six-inch depth. If the sample has stones or other debris, place the sample in a disposable sampling pan and remove debris prior to putting the sample in the sample jar.
6. Take one or more photographs of the sampling event.

7. Once the sample is collected, seal the jar and affix the label.
8. Place the sealed jar in a plastic bag and place in the cooler.
9. If step 4 was executed, replace the sod to its original position.
10. Repeat steps 1-9 for each surface soil sampling location. Any deviations should be noted in the field logbook.

After all samples are collected and placed in the cooler, if the cooler does not already contain ice, add ice. A thermometer may be used to verify that the temperature of the cooler is 6 degrees Celsius or lower. Add additional ice if needed. Ensure that all labels, chain-of-custody forms, and the field logbook are filled out for samples; ensure that all photographs are documented in the field logbook and samples numbers indicated. If mailing the samples, enclose the chain-of-custody forms inside of a plastic bag, affix the bag to the inside of the cooler, and seal the cooler with sample evident security tape or with locks. Alternatively, the samples may be placed in a plastic bag inside the cooler and the bag will be sealed with tape and a custody seal will be placed around the tape.

The sample coolers with the chain-of-custody forms should be delivered to Robert Snyder at EPA -CRL within 24 hours of collection. Contact Robert at snyder.robert@epa.gov or (312) 353-9083 to coordinate sample drop-off. Carbon-copy Amanda Wroble, at wroble.amanda@epa.gov, on all emails to Robert. Sample drop-off will occur at:

EPA - Chicago Regional Laboratory
10th Floor
536 South Clark Street
Chicago, IL 60605

Appendix C

US EPA Region 5 – CRL Sample Requirements Table, Version 5

U.S. EPA CHICAGO REGIONAL LABORATORY **HOLDING TIME AND CONTAINER REQUIREMENTS FOR WATER / AQUEOUS SAMPLES**

DISCLAIMER: This table represents The Chicago Regional Laboratory's (CRL) recommended guidelines. Additional containers may be required for laboratory quality control samples (see notes section). There are non-routine analytes (reported upon request) that may require modification to the specifications detailed in this table. It is the client's responsibility to confirm container, preservation, and holding time requirements for a project prior to initiating sampling. This includes any equipment procurements, if applicable. No brand endorsements are made or implied.

General Chemistry	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Volume (mLs) ¹	Container ²	Preservation
Acidity	AIG004A	SM 2310	14	50	500 mL Poly	≤6 C
Alkalinity	AIG005	SM 2320 B	14	50	500 mL Poly	≤6 C
Ammonia (Nitrogen, NH ₃) Distilled	AIG029B	SM 4500-NH ₃ B/H	28	50	500 mL Poly	pH<2, H2SO4, ≤6 C
Anions (Br, Cl, F, NO ₃ , NO ₂ , PO ₄ ³⁻ , SO ₄)	AIG045A	EPA 300.0	2 ^b or 28	10	250 mL Poly	≤6 C
Biochemical Oxygen Demand (BOD) 5-day	AIG006, A	SM 5210 B	2	60	1 L Poly	≤6 C
BOD, Carbonaceous (cBOD)	AIG006, A	SM 5210 B	2	60	1 L Poly	≤6 C
Corrosivity	AIG003	EPA 9040C	365	20	250 mL Amber	≤6 C
Cyanide, Amenable	AIG025A	SM 4500 CN ⁻ G	14	50	500 mL Poly	dechlorinatec NaOH, pH>10, ≤6 C
Cyanide, Total	AIG025C	EPA 335.4	14	50	500 mL Poly	dechlorinatec NaOH, pH>10, ≤6C
Ignitability (Flashpoint)	AIG048A, B	EPA 1010A, 1020B	365	100	250 mL Clear	ambient
Nitrogen, Nitrate+Nitrite	AIG031B	ASTM D7781-14	28	10	500 mL Poly	pH<2, H2SO4, ≤6 C
Nitrogen, Total Kjeldahl (TKN)	AIG035B	EPA 351.2	28	10	500 mL Poly	pH<2, H2SO4, ≤6 C
Organic Carbon, Dissolved (DOC)	AIG021D	EPA 5310B	28	20	500 mL Poly	field filteredd pH<2, H2SO4, ≤6 C
Organic Carbon, Total (TOC)	AIG021D	EPA 5310B	28	20	500 mL Poly	pH<2, H2SO4, ≤6 C
Paint Filter Liquid Test	AIG010	EPA 9095B	30	100	250 mL Amber	≤6 C
pH	AIG002	SM 4500-H ⁺ B	15 min	50	250 mL Poly	≤6 C
Phosphorus, Total Dissolved (TDP)	AIG034B	EPA 365.4	28	10	500 mL Poly	field filteredd pH<2, H2SO4, ≤6 C
Phosphorus, Total (TP)	AIG034B	EPA 365.4	28	10	500 mL Poly	pH<2, H2SO4, ≤6 C
Solids, Total Dissolved (TDS)	AIG017	SM 2540 C	7	50	500 mL Poly	≤6 C
Solids, Total Suspended (TSS)	AIG018	SM 2540 D	7	100	500 mL Poly	≤6 C
Turbidity	AIG054	EPA 180.1	2	30	250 mL Clear	≤6 C
Water Content	AIG015A	EPA 9000	365	10	250 mL Amber	≤6 C
Metals	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Volume (mLs)	Container	Preservation
Chromium (VI)	AIG032A	EPA 218.6	28	50	250 mL Poly	pH 9.3-9.7, ≤6 C NaOH/(NH4)2SO4
Hardness	Metals026	SM 2340 B	180	50	500 mL Poly	pH<2, HNO ₃
Mercury (Hg)	AIG044D, E	EPA 245.1/7470A	28	20	500 mL Poly	pH<2, HNO ₃
Metals, Total	Metals001, 003, 003A	EPA 200.7/200.8 EPA 6010D/6020B	180	50	500 mL Poly	pH<2, HNO ₃
Metals, Dissolved	Metals001, 003, 003A	EPA 200.7/200.8 EPA 6010D/6020B	180	50	500 mL Poly	field filtered ^d pH<2, HNO ₃
Organics	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Volume (mLs) ¹	Container	MS ^{MSD} Preservation
1,4-Dioxane (low-level)	MS035	EPA 522/8000D	28 ^e	250	2 - 250 mL Amber	2 pH<2, NaHSO4, ≤6 C
Chlorothalonil	MS033	EPA 525.3/8270D	7 ^f	40	3 - 40 mL Amber VOA	2 ≤6 C
Microcystins (drinking water only)	OM026	NA	28	500	2 - 500 mL Amber narrow-mouth	4 pH 6.5-7.5, ≤10 C
Oil and Grease	GC030, 32	EPA 1664B	28	1 L	2 - 1L Clear wide-mouth	2 pH<2, H2SO4, ≤6 C
Polychlorinated Biphenyls (PCBs)	GC002, 003	EPA 608/8082A	7 ^h or 365 ^f	1 L	2 - 1L Amber narrow-mouth	2 ≤6 C
PCB Congeners (oil only)	OM025	NA	365	1 gram	4 oz. jar	1 ≤6 C
Perfluorinated Compounds (PFCs)	OM021	NA	28	5	2 - 15 mL Polypropylene tube (preweighed)	4 ≤6 C
Pesticides (low level)	OM019	NA	28 ^f	8	2 - 40 mL Amber VOA	2 ≤6 C
Pesticides, Chlorinated	GC001	EPA 608/8081B	7 ^f	1 L	2 - 1L Amber narrow-mouth	2 ≤6 C
Petroleum Hydrocarbons (TPH as DRO/ORO)	GC034	EPA 8015C	7 ^f	1 L	2 - 1L Amber	2 ≤6 C
Semi-Volatile Organic Compounds (SVOCs)	MS026, 27	EPA 625/8270D	7 ^f	1 L	2 - 1L Amber narrow-mouth	2 ≤6 C
Volatile Organic Compounds (VOCs)	MS023, 24	EPA 624/8260C	7 (unpreserved) 14 (Preserved)	40	3 - 40mL VOA no headspace	2 pH<2, HCl, ≤6 C
Waste Characterization	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Volume (mLs)	Container	Preservation
Toxicity Characteristic Leaching Procedure (TCLP) ^h	GEN019	EPA 1311	Varies ^g	Varies ^j	Varies	≤6 C

Notes:

^aOrthophosphate must be field filtered

^bNitrite, nitrate, and ortho-phosphate have a 48 hour holding time

^cDechlorinate with ascorbic acid

^dField filtering should use a 0.45 µm filter

^eAll containers must be filled completely and maintained on ice at < 6 C

^f40 day holding time post extraction

^g28 day holding time post extraction

^hCan be requested for metals, Hg, Pesticides, SVOCs and VOCs

ⁱField collection->TCLP ext. (in days): 14 for organics, 28 for Hg, 180 for metals

^jContact CRL for additional details and/or options

^kApplicable to method 608 only

^lPer sample. Does not include amount needed for QC samples or excess

needed for dilutions/reanalysis

^mExtra containers needed for MS/MSD location. Frequency = 1/20 field samples

CRL Sample RequirementsTable

Version 5

April 2019

U.S. EPA CHICAGO REGIONAL LABORATORY

HOLDING TIME AND CONTAINER REQUIREMENTS FOR SOIL / SOLID SAMPLES

DISCLAIMER: This table represents The Chicago Regional Laboratory's (CRL) recommended guidelines. Additional containers may be required for laboratory quality control samples (see notes section). There are non-routine analytes (reported upon request) that may require modification to the specifications detailed in this table. It is the client's responsibility to confirm container, preservation, and holding time requirements for a project prior to initiating sampling. This includes any equipment procurements, if applicable. No brand endorsements are made or implied.

General Chemistry	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Mass (g) ^l	Container ^c	Preservation ^d
Ammonia (Nitrogen, NH ₃)	AIG029B, 22A	SM 4500-NH ₃ B/H	28	1	4 oz. jar	≤6 C
Anions (Br, Cl, F, NO ₃ , NO ₂ , PO ₄ , SO ₄)	AIG039, 45A	EPA 300.0	2 ^{a,b} or 28 ^b	10	4 oz. jar	≤6 C
Chemical Oxygen Demand (COD)	AIG007A, 22A	410.4	28 ^b	10	4 oz. jar	≤6 C
Cyanide, Total	AIG025B, C	EPA 335.4	14	1	4 oz. jar	≤6 C
Nitrogen, Total Kjeldahl (TKN)	AIG022A, 35B	EPA 351.2	28 ^b	1	4 oz. jar	≤6 C
Organic Carbon, Total (TOC)	AIG009A	ASA-SSSA	28 ^b	1	4 oz. jar	≤6 C
Particle Size	AIG038, 38A	ASTM D2487-93	365	100	16 oz. jar	≤6 C
pH	AIG008	EPA 9045D	365	20	4 oz. jar	≤6 C
Phosphorus, Total (TP)	AIG022A, 34B	EPA 365.4	28 ^b	1	4 oz. jar	≤6 C
% Solids	AIG019	SM 2540 G	7	10	4 oz. jar	≤6 C
Metals	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Mass (g) ^l	Container	Preservation
Chromium (VI)	AIG033A	EPA 7199/3060A	30	2.5	4 oz. jar	≤6 C
Mercury (Hg)	AIG043C,D,E	EPA 245.5/7471B EPA 7473	28	1	4 oz. jar	≤6 C
Metals, Total	Metals001, 003A, 004	EPA 200.7/200.8 EPA 6010C,D/6020B	180	100	4 oz. jar	≤6 C
Organics	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Mass (g) ^l	Container	Preservation
Pesticides, Chlorinated	GC001	EPA 8081B	14 ^m	10	8 oz. jar	≤6 C
Polychlorinated Biphenyls (PCBs)	GC002, 003	EPA 8082A	365 ^m	10	8 oz. jar	≤6 C
PCB Congeners	OM025	NA	365	30	8 oz. jar	≤6 C
Perfluorinated Compounds (PFCs)	OM022	NA	28	2	50 mL Polypropylene Tube ^k	≤6 C
Petroleum Hydrocarbons (TPH as DRO/ORO)	GC034	EPA 8015C	14 ^m	30	8 oz. jar	≤6 C
Polycyclic Aromatic Hydrocarbons, Alkylated	MS026	NA	14 ^m	30	8 oz. jar	≤6 C
Semi-Volatile Organic Compounds (SVOCs)	MS026	EPA 8270D	14 ^m	30	8 oz. jar	≤6 C
Volatile Organic Compounds (VOCs)	MS001	EPA 8260C	2	5	3 Encores™ ^e or 3 VOA vials w/ stir bar ^{e,f,j}	≤6 C
Waste Characterization	CRL SOP(s)	Reference Method	Holding Time (days)	Min. Mass (g) ^l	Container	Preservation
Toxicity Characteristic Leaching Procedure (TCLP) ^f	GEN019	EPA 1311	Varies ^h	Varies ⁱ	16 oz. jar	≤6 C
HOLDING TIME AND CONTAINER REQUIREMENTS FOR FILTERS / WIPE SAMPLES						
Organics	CRL SOP(s)	Reference Method	Holding Time (days)	Num. of Wipes	Container	Preservation
Polychlorinated Biphenyls (PCBs)	GC002, 003	EPA 8082A	365 ^m	1 wipe w/hexane	4 oz. jar	≤6 C
Semi-Volatile Organic Compounds (SVOCs)	MS026	EPA 8270D	14 ^m	1 wipe w/ isopropanol	4 oz. jar	≤6 C
HOLDING TIME AND CONTAINER REQUIREMENTS FOR AIR / VAPOR SAMPLES						
Volatiles	CRL SOP(s)	Reference Method	Holding Time (days)	Pressure	Vessel	Preservation
Air Toxics	MS005	TO-15	30	approx. -7 "Hg	2.7 L Summa ^l	Ambient

Notes:

^aNitrite, nitrate, and ortho-phosphate have a 48 hour holding time

^bHolding time after extraction

^cAll jars should be wide mouthed and have a Teflon lid

^dAll containers must be filled completely and maintained on ice at ≤ 6 C

^eIf no additional organics are requested, a 4 oz. jar must be submitted for % solids. For MS/MSD locations, 3 extra encores/VOA vials are need. Frequency = 1/20 field samples

^fDispensed in preweighed 40 mL VOA vials with stir bar.

Preferred over Encore™ or similar. No brands are endorsed by CRL.

^gCan be requested for metals, Hg, Pesticides, SVOCs and VOCs

^hField collection->TCLP ext. (in days): 14 for organics, 28 for Hg, 180 for metals

ⁱContact CRL for additional details and/or options

^jCollected w/ a 5 gram coring device (e.g. Terracore™ or similar)

^kMust be preweighed

^lPer sample. Does not include amount needed for QC samples or excess needed for dilutions/reanalysis

^m40 day holding time post extraction

Figure 1. Road Surface Soil Sampling Locations

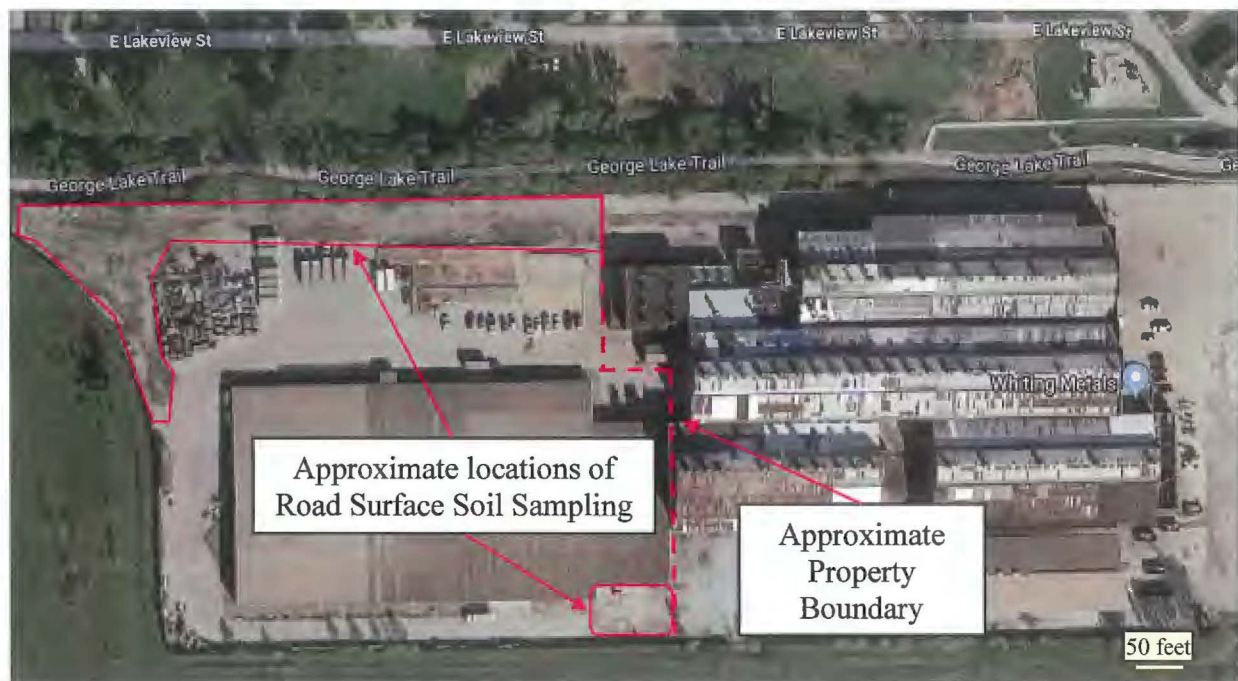


Figure 2. Right-of-Way Surface Soil Sampling Locations

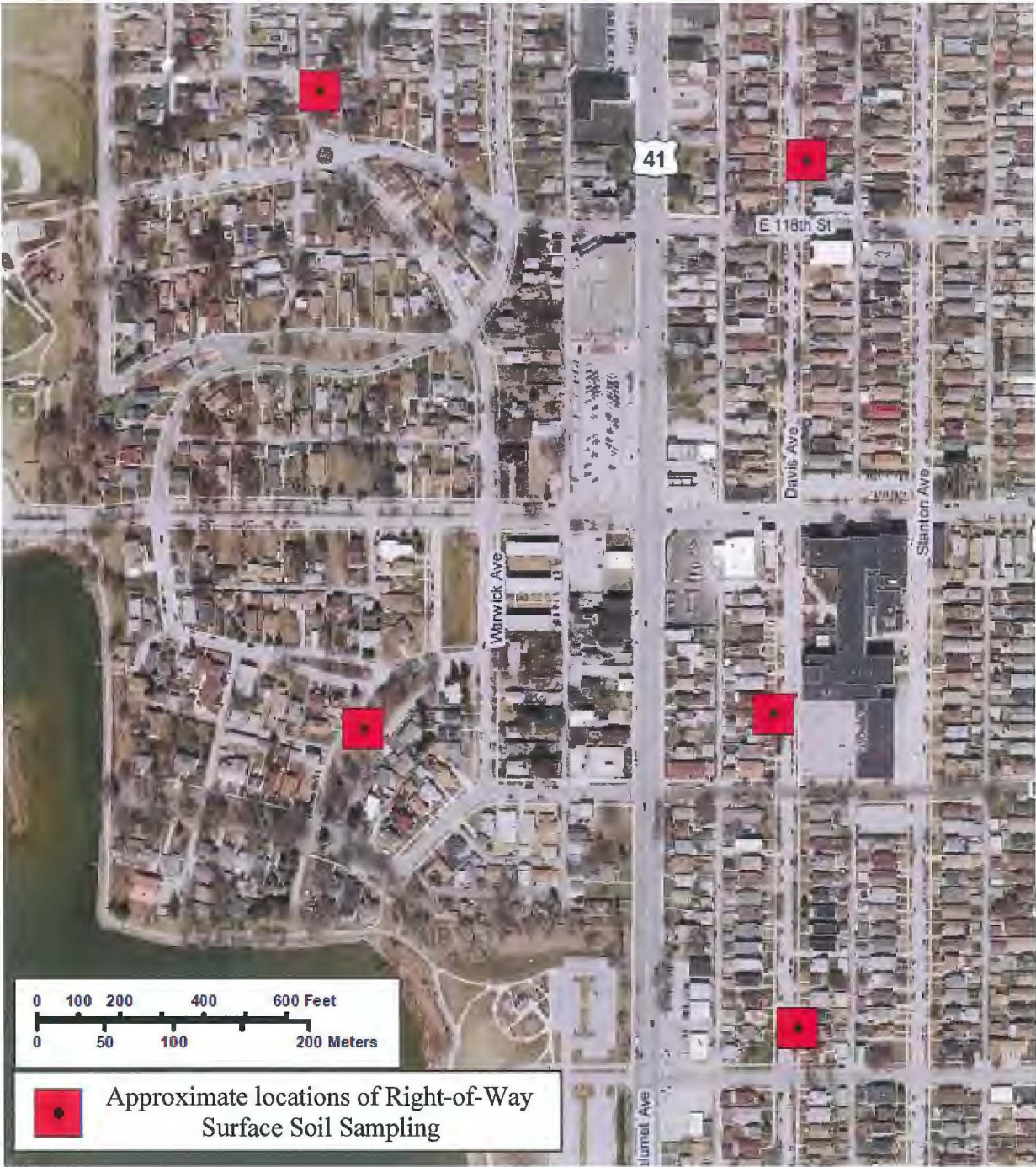


Table 1. Estimated Sample Numbers and Types for Road and Right-of-Way Sampling

Sample Location	# Samples ⁽¹⁾	Matrix ⁽²⁾	# Containers/ Size/Type	Parameter ⁽³⁾ / Analytical Method #	Preservative, Sample Holding Times	QC Level Requested and/or Special Detection Limit
Road Surface Soil	12	S	4-oz jars	Total Individual Metals Reference Methods: EPA 200.7/200.8 EPA 6010D/6020B	Refrigerate at ≤ 6 °C Holding Time: 180 days	See Note 4.
Right- of-Way Surface Soil	3 to 5	S	4-oz jars	Total Individual Metals Reference Methods: EPA 200.7/200.8 EPA 6010D/6020B	Refrigerate at ≤ 6 °C Holding Time: 180 days	See Note 4.

(1) Not including QC samples - Only lists investigative samples

(2) AQ=Aqueous, S=Soil, SED-Sediment, D=Drum, T=Tank, V=Vat, W=Wipe, A=Air

(3) See Table 2

(4) Precision, accuracy and sensitivity of all measurements as described in the Region 5 Chicago Regional Laboratory Standard Operating Procedures for the requested analyses shall be sufficient for this inspection.

Table 2. List of EPA Methods for Road and Right-of-Way Surface Soil Sample Analysis for Metals

EPA Method	CRL Document #	Version #	Effective Date
200.8/SW-846: Analysis of Metals by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)	Metals001	9	4/10/2019
200.7/6010D Analysis of Metals by ICP-Optical Emission Spectroscopy (ICP-OES)	Metals003A	5	6/11/2018
200.7/SW-846: 6010D* Analysis of Metals in Soils and Sediments based on ICP Method 200.7/SW-846 6010D Using the Perkin Elmer Optima 8300 DV	Metals004	4	4/30/2018
200.2 ⁺ Digestion of Aqueous and Solid Samples	Metals025	3	2/21/2017

* This method may be used if the instrument that corresponds to Metals003A goes down.

⁺ This method is used to prepare samples for metals analysis.

Table 3. USEPA Region 5 - CRL Metals 001 List of Metals and RLs

Analyte	RL (µg/kg)
Antimony (Sb)	0.50
Arsenic (As)	1.0
Barium (Ba)	5.0
Beryllium (Be)	0.50
Cadmium (Cd)	0.50
Chromium (Cr)	1.0
Cobalt (Co)	0.25
Copper (Cu)	1.0
Lead (Pb)	0.25
Manganese (Mn)	0.50
Molybdenum (Mo)	0.50
Nickel (Ni)	0.50
Selenium (Se)	1.0
Silver (Ag) ⁺	0.50
Thallium (Tl)	0.25
Thorium (Th)	2.5
Uranium (U)	0.25
Vanadium (V)	5.0
Zinc (Zn)	5.0

⁺These analytes are not requested

Table 4. USEPA Region 5 - CRL Metals 003A List of Metals and RLs

Analyte	RL (mg/kg) .
Aluminum (Al)	20
Antimony (Sb)	2
Arsenic (As)	4
Barium (Ba)	0.3
Beryllium (Be)	0.2
Boron (B) ⁺	5
Cadmium (Cd)	0.2
Calcium (Ca)	20
Cerium (Ce) ^{*+}	N/A
Chromium (Cr)	0.5
Cobalt (Co)	0.6
Copper (Cu)	2
Iron (Fe)	8
Lead (Pb)	3
Lithium (Li) ⁺	2.5
Magnesium (Mg)	20
Manganese (Mn)	0.8
Molybdenum (Mo)	1.2
Nickel (Ni)	1.2
Phosphorus (P) ^{*+}	N/A
Potassium (K)	80
Selenium (Se)	5
Silica (SiO ₂) ^{*+}	N/A
Silver (Ag) ⁺	1
Sodium (Na)	40
Strontium (Sr)	0.3
Thallium (Tl)	6
Tin (Sn)	2
Titanium (Ti)	0.6
Vanadium (V)	0.5
Zinc (Zn)	3

*These analytes are not routinely reported

⁺These analytes are not requested